

CLAIMS

1. A gold jewelry lapping machine operable with a lap wheel for lapping gold jewelry and adapted to collect gold dust produced from said jewelry by said lapping machine, comprising:

(a) a base,

(b) an electric motor mounted to said base, said electric motor having a rotatable output shaft extending upward and adapted to be coupled to said lap wheel which is situated above said electric motor and rotates about the axis of said output shaft, with a gold dust debris space defined as the area surrounding said lap wheel and extending from below said lap wheel downward and surrounding at least part of said output shaft,

(c) a shroud comprising rear and opposite side parts that surround the rear and opposite sides of said gold dust debris space respectively, thus leaving the front of said gold dust debris space open and accessible, said shroud comprising a continuous front wall and a continuous rear wall spaced radially outward of said front wall, with air flow passages defined between said front and rear walls of said rear and side parts, said front walls of said side and rear parts of said shroud having a plurality of apertures which comprise a majority of the surface area thereof,

(d) a first air exhaust port in said rear wall of said rear part of said shroud at an elevation below the bottom of said lap wheel, said air flow passages in said side parts of said shroud communicating with said air flow passage in said rear part and with said first air exhaust port, and

(e) exhaust air suction means communicating with said first air exhaust port for drawing air and gold dust from said gold dust debris area.

2. A machine according to Claim 1, further comprising a second air exhaust port in a first of said side parts of said shroud at an elevation at least partially below the bottom of said lap wheel, said second air exhaust port having an inlet adjacent said front wall of said first side part and an outlet in communication with said exhaust air suction means, said second air exhaust port defining an air passage

separate from said air passage defined by said front and rear walls of said first side part.

3. A machine according to Claim 2 wherein said air passage in said first side part between said front and rear walls thereof extends generally circumferentially from front toward the rear, and said air passage in said second air exhaust port extends generally radially.
4. A machine according to Claim 3 wherein a common wall separates said air passage of said second air exhaust port and said air passage in said first side.
5. A machine according to Claim 2 wherein said first and second sides of said shroud have front edges which define between them a straight line, and said lap wheel is situated with its front peripheral edge no farther forward than said straight line.
6. A machine according to Claim 2 wherein in top plan view said lap wheel rotates clockwise with gold dust from gold jewelry being lapped by the front portion of said lap wheel being spewed to the left, and wherein said second air exhaust port is on the left side of said shroud in line with gold dust spewed off said lap wheel.
7. A machine according to Claim 1 wherein said, apertures in a said front wall of a said shroud comprise a majority of said surface area of a said front wall.
8. A machine according to Claim 1 wherein said apertures comprise an area in the range of 70-90% of the surface of a said front wall.
9. A machine according to Claim 1 wherein said a front surface of each of said side and rear walls comprises wire fence material.
10. A machine according to Claim 9 wherein said a wire fence comprises vertical and horizontal wires defining a grid of adjacent apertures.
11. A machine according to Claim 10 wherein each of said apertures has height of about one inch and width of about one inch.
12. A machine according to Claim 9 wherein said wire fence comprises steel wire.

13. A machine according to Claim 1 wherein said lap wheel has four slits (a) extending radially inward from the outer perimeter part way to the center of the wheel, (b) spaced apart by 90° between each two slits, and (c) extending through said lap wheel from top to bottom.
14. A machine according to Claim 13 wherein said electric motor rotates said lap wheel at a speed of approximately 3450 rpm.
15. A machine according to Claim 1 wherein said exhaust air suction means creates an air flow through each of said exhaust ports of about 400 cfm.
16. A machine according to Claim 2 further comprising a filter downstream of said air exhaust ports and upstream of said exhaust air suction means to capture gold dust produced from said lap wheel on jewelry being lapped.
17. A machine according to Claim 1 wherein said exhaust air suction means creates an air flow at least sufficient to entrain in said air flow said gold dust produced by said lap wheel and gold jewelry being lapped.
18. A machine according to Claim 17 wherein said exhaust air suction means creates an air flow at least sufficient to substantially prevent said entrained gold dust from adhering to said front and rear walls.
19. A machine according to Claim 1 wherein said front and rear walls define a generally circular curve.
20. A machine according to Claim 1 wherein said front and rear walls comprise a plurality of flat panels which together define a generally concave configuration.
21. A machine according to Claim 1 wherein said shroud extends from said base upward to an elevation above said lap wheel.
22. A lapping machine operable with a lap wheel for lapping articles and with an air exhaust suction system adapted to collect dust produced from said article by said lapping machine, comprising:
  - (a) a base,
  - (b) an electric motor mounted to said base, said electric motor having a rotatable output shaft extending upward and adapted to be coupled to said lap wheel which is situated above said electric motor and rotates about the axis of said

output shaft, with a dust debris space defined as the area surrounding said lap wheel and extending from below said lap wheel downward and surrounding at least part of said output shaft,

(c) a shroud comprising rear and opposite side parts that surround the rear and opposite sides of said dust debris space respectively, thus leaving the front of said dust debris space open and accessible, said shroud comprising a continuous front wall and a continuous rear wall spaced radially outward of said front wall, with air flow passages defined between said front and rear walls of said rear and side parts, said front walls of said side and rear parts of said shroud having a plurality of apertures,

(d) a first air exhaust port in said rear wall of said rear part of said shroud at an elevation below the bottom of said lap wheel, said air flow passages in said side parts of said shroud communicating with said air flow passage in said rear part and with said first air exhaust port, and

(e) a second air exhaust port in a first of said side parts of said shroud at an elevation at least partially below the bottom of said lap wheel, said second air exhaust port having an inlet adjacent said front wall of said first side part and an outlet in communication with said exhaust air suction means, said second air exhaust port defining an air passage separate from said air passage defined by said front and rear walls of said first side part,

wherein said exhaust air suction means communicates with both said first and said second air exhaust ports for drawing air and dust from said dust debris area.

23. A lapping machine operable with a lap wheel for lapping articles and adapted to collect with an exhaust air suction means dust produced from said articles by said lapping machine, comprising:

(a) a base,

(b) an electric motor mounted to said base, said electric motor having a rotatable output shaft extending upward and adapted to be coupled to said lap wheel which is situated above said electric motor and rotates about the axis of said

output shaft, with a gold dust debris space defined as the area surrounding said lap wheel and extending from below said lap wheel downward and surrounding at least part of said output shaft,

(c) a shroud comprising rear and opposite side parts that surround the rear and opposite sides of said gold dust debris space respectively, thus leaving the front of said gold dust debris space open and accessible, said shroud comprising a continuous front wall and a continuous rear wall spaced radially outward of said front wall, with air flow passages defined between said front and rear walls of said rear and side parts, said front walls of said side and rear parts of said shroud having a plurality of apertures which comprise a majority of the surface area thereof, said rear walls having apertures therethrough,

(d) a rear manifold wall spaced outward and rearward of said rear wall defining an outer passageway,

(e) a first air exhaust port in said manifold of said rear part of said shroud at an elevation below the bottom of said lap wheel, said air flow passages in said side parts of said shroud communicating with said air flow passage in said rear part and with said outer passageway and with said first air exhaust port, and

(f) a second air exhaust port having an inlet adjacent said front wall of said first side part and an outlet in communication with said exhaust air suction means, said second air exhaust port defining an air passage separate from said air passage defined by said front and rear walls of said first side part,

wherein said exhaust air suction means communicates with said first air exhaust port for drawing air and dust from said dust debris area.

24. A shroud for a gold jewelry lapping machine having a gold dust debris space defined as the area generally surrounding said lap wheel and extending below said lap wheel, said shroud operable with an exhaust air suction means adapted to collect gold dust produced from said jewelry by said gold jewelry lapping machine, said shroud comprising:

(a) rear and opposite side parts that surround the rear and opposite sides of said gold dust debris space respectively, thus leaving the front of said gold dust

debris space open and accessible, said shroud comprising a continuous front wall and a continuous rear wall spaced radially outward of said front wall, with air flow passages defined between said front and rear walls of said rear and side parts, said front walls of said side and rear parts of said shroud having a plurality of apertures,

(b) a first air exhaust port in said rear wall of said rear part of said shroud at an elevation at least partially below the bottom of said lap wheel, said air flow passages in said side parts of said shroud communicating with said air flow passage in said rear part and with said first air exhaust port, and

(c) a second air exhaust port in a first of said side parts of said shroud at an elevation at least partially below the bottom of said lap wheel, said second air exhaust port having an inlet adjacent said front wall of said first side part and an outlet in communication with said exhaust air suction means, said second air exhaust port defining an air passage separate from said air passage defined by said front and rear walls of said first side part,

wherein said exhaust air suction means communicates with both said first and said second air exhaust ports for drawing air and gold dust from said gold dust debris area.